I. Executive Summary

The Cranston-Gonzalez National Affordable Housing Act (NAHA) requires an independent actuarial analysis of the economic net worth and soundness of the Federal Housing Administration's (FHA's) Mutual Mortgage Insurance (MMI) Fund. This report presents our findings with respect to this required analysis for fiscal year (FY) 2002 using data as of March 31, 2002.

The primary purpose of this review is to estimate:

- The economic value of the MMI Fund, defined as the sum of existing capital plus the net present value of current books of business, and

- The current and projected capital ratio, defined as the economic value divided by the total insurance in-force (IIF).

Status of the Fund

NAHA mandated that the MMI Fund achieve a capital ratio of at least 1.25 percent by FY 1992 and a capital ratio of at least 2.00 percent by FY 2000. Last year's Actuarial Review estimated that the MMI Fund's capital ratio at the end of FY 2001 was 3.75 percent, the seventh consecutive year it exceeded the 2.00 percent FY 2000 requirement. This year, we estimate that the FY 2002 capital ratio is 4.52 percent. We also estimate that the FY 2004 capital ratio will be 5.14 percent and that the FY 2009 capital ratio will be 5.99 percent. Table I-1 provides our estimates of the Fund's current and future economic values and capital ratios.

In defining the capital ratio, NAHA stipulates the use of unamortized insurance in-force. However, "unamortized insurance in-force" is defined in the legislation as "the remaining obligation on outstanding mortgages" – a definition generally understood to apply to amortized IIF. Deloitte & Touche (D&T) uses the unamortized IIF measure (as generally defined) in calculating the capital ratio. However, it is also instructive to consider the capital ratio based on amortized IIF, which is the basis the General Accounting Office has used in its previous reports on the status of the Fund. Our estimate of the FY 2002 capital ratio using amortized IIF is 4.85 percent, our estimate of the FY 2004 capital ratio is 5.48 percent, and our estimate of the FY 2009 capital ratio is 6.45 percent. Unless stated otherwise, all references to the Fund's capital ratios in this report refer to the ratio computed using unamortized IIF.

Sources of Change in the Status of the Fund

Change in Economic Value from FY 2001 to FY 2002

We estimate the economic value of the MMI Fund (the Fund) to be $22.636 billion at the end of FY 2002; this is a $0.101 billion (or 0.45 percent) increase from our FY 2002-end estimate of $22.535 billion in last year's analysis. Please note that the current estimate of $22.636 billion excludes administrative expenses for all future fiscal years, unlike our estimates in past years. According to HUD, the funding for administrative expenses is derived from appropriations outside of the Fund and thus future expenses should not be considered in the estimation of economic value.

Our $22.636 billion estimate of the Fund's economic value is comprised of an estimate of total capital resources as of fiscal year-end 2001 of $18.567 billion and the present value of future cash flows for in-force business of negative $0.223 billion. The sum of these two components ($18.567 – $0.223 = $18.344 billion) is shown as the economic value of the Fund at the beginning of FY 2002.

The difference between the economic value of the Fund at the end of FY 2002 and at the beginning of the fiscal year is the result of the activity in the Fund during the fiscal year. That is, the $18.344 billion economic value at the beginning of the year should increase by the present value of any new loans endorsed during the year, increase by the amount of investment income accrued during the year, and decrease by the amount of administrative expenses paid during the year.

The development of the $22.636 billion FY 2002 estimate of economic value is as follows:

Economic value at beginning of FY 2002:	$18.344 billion
Present value of FY 2002 endorsements:	$2.973 billion
FY 2002 investment income:	$1.319 billion
Less FY 2002 administrative expenses:	$0.000 billion
Economic value at end of FY 2002:	$22.636 billion

The same calculation holds for future fiscal years, and is shown in Exhibit II.1 for FY 2002 through FY 2009 (under the baseline economic assumptions).

This 0.45 percent increase in the estimated economic value of the MMI Fund since fiscal year-end 2000 is accompanied by a 5.84 percent decrease in the unamortized IIF relative to our expectations in last year's Review. These changes result in the capital ratio increasing by 0.28 percent from 4.24 percent to 4.52 percent for FY 2002.

Table I-1

Projected MMI Fund Performance for FY's 2002 through 2009 ($ Millions)							
Fiscal Year	**Economic Value of the Fund (FY end)**	**Capital Ratio (FY end)**	**Volume of New Endorsements**	**Unamortized Insurance In-force (FY end)**	**Economic Value of New Business**	**Interest on Fund Balances**	**Admin Expenses**
2002	$22,636	4.52%	$136,082	$500,492	$2,973	$1,319	$0
2003	27,270	4.91%	133,582	555,609	3,116	1,517	0
2004	31,897	5.14%	131,789	620,320	2,878	1,749	0
2005	36,474	5.29%	132,891	689,906	2,569	2,007	0
2006	41,002	5.39%	134,920	761,319	2,242	2,286	0
2007	45,884	5.51%	141,668	832,569	2,297	2,584	0
2008	51,262	5.70%	149,726	898,796	2,475	2,904	0
2009	57,234	5.99%	157,403	954,930	2,730	3,243	0

Current Estimate of FY 2002 Economic Value Compared with the Estimate Presented in the FY 2001 Actuarial Review

This year's estimate of the FY 2002 economic value is $0.101 billion higher than the economic value projected for FY 2002 in the FY 2001 Actuarial Review. This increase in the Fund's value is comprised primarily of three factors:

1. Assumption of 0 administrative expense in future years
2. Change in selected loss rates
3. Change in economic forecast
4. Change in the estimate of the present value of the 2002 book of business

The increase in economic value is driven by two major factors. First, as a result of discussions with HUD, we did not treat future administrative expenses as a (negative) cash flow in our analysis. This would have caused a $504M increase in our FY 2001 estimated value of the 2002 book of business. Our selected loss rates this year reflect the continual improvement seen since the implementation of the loss mitigation program. The change in selected loss rates caused a $513M increase in our estimated value of the 2002 book. Countering these two effects was the change in economic forecast, which had an estimated negative impact of $611 million. The estimated present value of the FY 2002 endorsements and the anticipated investment income decreased by $188 million relative to the FY 2001 Actuarial Review, as a result of a forecast for higher levels of prepayment activity in the early policy years relative to last year's estimates. Contract rates for the 2002 book are slightly higher than predicted in last year's study, while available interest rates in the first few policy years are lower than last year's economic forecast. Lastly, the revisions made to the econometric and cash flow models, including the use of a lower discount rate and the use of a new loan-to-value field in HUD's data warehouse, contribute an additional $66 million to the decrease in estimated economic value.

The impact of each factor is described in Table I-2 below.

Table I-2

Summary of Changes in MMI Fund Estimated Economic Value Between FY 2001 and FY 2002 ($ Millions)					
		Change in FY 2002 Economic Value	**FY 2002 Economic Value**	**Change in FY 2002 Capital Ratio**	**Corresponding FY 2002 Capital Ratio**
FY 2002 Economic Value Presented in the FY 2001 Review, Excluding the FY 2002 Book of Business			**$18,510**		
Plus:	Forecasted Value of 2002 Book of Business, Interest, and Expenses Presented in the FY 2001 Review	+$4,025			
Equals:	FY 2002 Economic Value Presented in the FY 2001 Actuarial Review		**$22,535**		**4.50%***
Plus:	Change in Estimated Present Value of Endorsements Originating in FY 2002	-$188	$22,347	-0.04%	4.47%
Plus:	Change due to economic forecast	-$611	$21,736	-0.12%	4.34%
Plus:	Change in Interest Income and Administrative Expenses	+$453	$22,189	+0.09%	4.43%
Plus:	Change in Loss Rates	+$513	$22,702	+0.10%	4.54%
Plus:	Lower Discount Rate/Other Modeling Changes	-$66	$22,636	-0.01%	4.52%
Equals:	**Estimate of FY 2002 Economic Value**	**+$110**	**$22,636**	**+0.02%**	**4.52%**

* The predicted FY 2002-end capital ratio in the 2001 study was 4.24%. This has been restated to 4.50% here due to the significant difference between predicted FY 2002-end insurance-in-force in the 2001 study ($531.5B) and actual FY 2002-end insurance-in-force ($500.5B).

Estimated Claim Severities

In the FY 2002 review, as in FY 2000 and FY 2001, we adopted a method that examines fiscal quarter loss rates and selects a claim severity rate by loan type – see *Appendix C, Claim Severity Model.* Since 1995 average claim severities have gradually decreased, particularly over the last few years. As explained in the *Claim Severity Model* appendix, we base the selected claim severity on the experience over the past 11 quarters. Using claim severities based on the more recent observed experience has a positive impact on the estimated economic value of the fund.

Effects of Loss Mitigation

It is our understanding that during FY 1996, Congress passed legislation that authorized the FHA to recompense mortgagees for actions taken to mitigate potential losses by providing mortgage foreclosure alternatives, such as special forbearance, pre-foreclosure sales, deed-in-lieu-of-foreclosure transactions, partial claim payments, and loan modifications. It is also our understanding that in the private conventional mortgage industry, Fannie Mae and Freddie Mac have successfully employed many of these loss mitigation techniques.

The loss mitigation program is expected to reduce the number of foreclosures and to significantly reduce the costs associated with many foreclosures. Evidence is emerging that indicates this program is having economic benefits and perhaps social benefits. The loss mitigation program has been employed for the past four years and has experienced rapid growth. The relatively short history of the program makes it difficult to incorporate in the conditional claim rate models. Because of this, the effects of the loss mitigation program have not been explicitly factored into the claim rate model. It should be noted that this provides a level of conservatism in our results. We are, however, beginning to reflect the impact of the loss mitigation program in the selection of the claim severities.

Additional Comments

The estimates presented here reflect projections of events more than 30 years into the future. These projections are dependent upon a number of assumptions, including economic forecasts by DRI and the assumption that FHA does not change its refund, premium, or underwriting policies from those assumed for this review. To the extent that these or other assumptions are not sufficiently accurate, the actual results will vary, perhaps significantly, from our current projections.

Estimation of the equations used for predicting prepayments and claims require large amounts of loan level data. These data take many weeks of intensive processing before they can be used to estimate the model parameters. Additionally, complete data for a fiscal year are generally not available until a few months after the end of the fiscal year because of reporting and processing lags. We obtained a data extract from FHA that represents activity as of March 31, 2002. This data extract contains loan level information, providing information on both the aggregate level of activity and the distribution of that activity. We have used these data to estimate our econometric claim and prepayment rate models.

Finally, while we have reviewed the integrity and consistency of the data supplied by FHA and believe it to be reliable, we have not audited it for accuracy. Additionally, the information contained in this report may not correspond exactly with other published analyses that rely on FHA data compiled at a different time or obtained from other systems.

Impact of Economic Forecasts

The economic value of the Fund and its pattern of capital accumulation depend on several factors. One of the most important factors is the future economic environment that will exist during the remaining life of the FHA's current books of business. We capture the most significant factors in the U.S. economy affecting the performance of the Fund's books of business through the use of the following economic variables:

- FHA mortgage contract rates – 30- and 15-year
- One-year Treasury Bill rates
- Appreciation in house prices
- Growth of mean household income levels
- Number of mortgage originations

The performance of the FHA's books of business, measured by the economic value of the MMI Fund, is affected by changes in these economic variables. Higher mortgage interest rates raise initial and ongoing payment burdens on household cash flows, and hence claim risks of new originations while decreasing the risk of claims on older loans with below-market interest rates. Lower mortgage interest rates have the reverse effect and tend to accelerate refinancing of earlier originations while increasing insurance claims. Faster average house price growth facilitates the accumulation of home equity, which tends to reduce the likelihood of a claim. It also contributes to greater mobility and household asset portfolio rebalancing, leading to greater turnover of housing and refinancing, thereby increasing prepayment rates. Faster income growth reduces the relative burden of mortgage payments on household cash flows over time, reducing the risk of claims as mortgages mature.

The base case results in this report are based on DRI's U.S. Economy forecast as of October 2002 for interest rates, average house prices, and inflation rates. We also considered three additional scenarios which were based GAO's judgmental scenarios in *FHA's Fund Has Grown, but Options for Drawing on the Fund Have Uncertain Outcomes* (February, 2001). Please note that the scenarios we selected are not strictly derived from GAO's analysis, due in part to the fact that the modeling process we employ is not the same as GAO. The characteristics of these three forecasts are described in *Appendix F, Economic Forecast* of this report. We considered one additional scenario where future losses were modeled using the loss rates selected in the 2001 Actuarial Review. We present our estimates of the Fund's performance under each of economic scenarios in Table I-3.

We project that under all five scenarios, the Fund will exceed the NAHA FY 2000 capital ratio target of 2.00 percent.

Table I-3

Projected MMI Fund Performance by Macroeconomic Scenario ($ Millions)					
	Base Case	**Low House Price Appreciation**	**High Interest Rates**	**High Unemployment**	**Using 2001 Selected Loss Rates**
Current Economic Value (FY 2002)	$22,636	$20,901	$23,816	$22,000	$22,123
Current Capital Ratio (FY 2002)	4.52%	4.18%	4.76%	4.40%	4.42%
Projected Capital Ratio (FY 2004)	5.14%	4.58%	4.15%	4.72%	5.01%
Projected Capital Ratio (FY 2009)	5.99%	5.55%	5.61%	5.71%	5.79%